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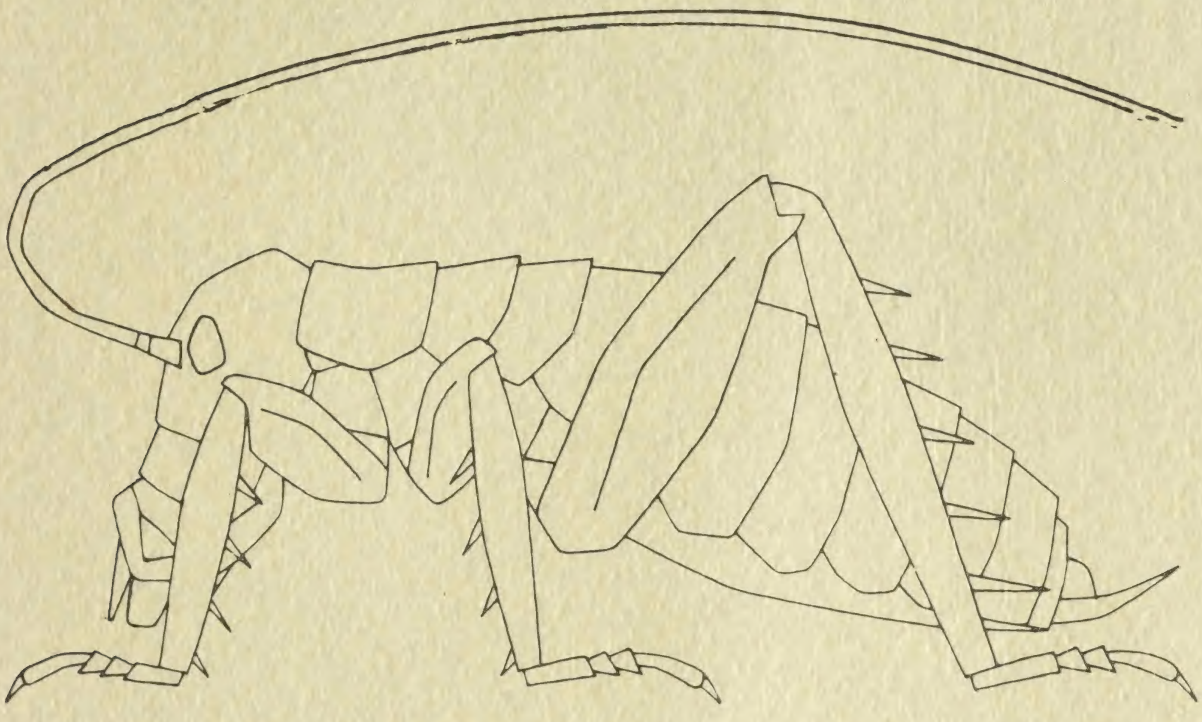
THE WETA



Newsbulletin of The Entomological Society of New Zealand Inc.

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J.D. Tenquist,
Editor, The 'Weta',
Wallaceville Animal Research Centre,
Private Bag,
Upper Hutt.

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AUSTRALIAN SPIDER IN NEW ZEALAND

First record of ARANEUS HEROINE (Koch 1871)

D Gibbs, 19 Beech Crescent, Hamilton

There are at least sixteen species of Australian spiders established in New Zealand, excluding this new record which is discussed in this article. The sixteen species now established are briefly discussed:

Ixeuticus martius, (Simon, 1899) - Family Amaurobiidae. Commonly called the grey house spider, for it is greyish in colour and is most frequently found around houses, garages and outbuildings. By day the spider rests within a short funnel-type retreat leading from a rather untidy web comprised of silk laid down in a series of zig-zag patterns.

I. martius is abundant throughout New Zealand and interestingly it is preyed upon by another Australian spider, Lampona cylindrata.

Ixeuticus robustus (L. Koch, 1872) - Family Amaurobiidae. Larger and darker than I. martius, this spider is known as the black house spider: distribution is confined to the North Island, where it is found less frequently around houses, but more in rural areas, where its webs, similar to I. martius,can be found among tree roots, extending from under loose bark on trees and even amongst the scoria shingle on the slopes of Rangitoto Island in the Hauraki Gulf.

In Australia it has been reported that the bite of this spider is dangerous, with symptoms being: severe swelling, localised pain and shivering, possibly followed by semi-consciousness.

Supunna picta (L. Koch, 1873) - Family Clubionidae. This striking black and white spider was first discovered in Auckland during the 1940s and has now extended its range south to become common in the Bay of Plenty. It has recently become established in Canterbury. It is a fast moving vagrant spider that does not weave a web snare, relying upon speed to hunt down its prey. S. picta is commonly found under driftwood or leaf foliage on the sand-dunes and amongst the wood scattered along riverbanks.

Lampona cylindrata (L. Koch, 1866) - Family Gnaphosidae. Easily recognised by the white tip to a black-grey abdomen, this Australian spider is a wanderer, being seen around houses, moving slowly in search of other spiders upon which it preys. The prey is frequently the grey house spider, but it has been seen to prey upon the cobweb spider Achaearanea veruculata and even the juvenile of the large sheet web spider Cambridgea foliata.

Lampona cylindrata is confined to the North Island where it is common and, like I. robustus, its bite is reputed to be dangerous.

Hemicloea rogenhofferi (L. Koch) - Family Gnaphosidae.
An early arrival from Australia it is found under the loose bark of trees, particularly the Australian eucalypts or the native manuka or kanuka.

In appearance it looks like a large crab spider, though it is readily identified, for the fourth pair of legs cross over each other above the flattened abdomen.

Isopeda insignis (Thorell) - Family Sparassidae.
In Auckland this spider is known as the Avondale spider; a name taken from the City suburb in which it was first found thirty years ago. Today distribution of I. insignis is still restricted to those suburbs adjacent to Avondale.

This large and hairy spider is an Australian triantelope, being found inside houses where it hunts for moths, flies and other insects. When approached it moves rapidly to a crack or crevice and disappears into a space that belies its size.

Stiphidion facetum (Simon, 1902) - Family Stiphidiidae.
Called the sombrero spider because of the characteristic shape of its web, this spider is found beneath any overhanging surface, a clay bank, fence rail or tree roots. The web is a finely woven silk sheet supported above the surface by guy threads. The centre of the web, a wide funnel, extends down to the surface. It is this that gives the web its sombrero hat appearance. The spider rests at the base of the funnel.

Desis marina (Hector, 1877) - Family Agelenidae.
This littoral spider is found between the high and low tide levels along stretches of rocky coastline. At ebb tide the spider emerges from its retreat in rock crevices, holes or any empty shell to hunt insects and small fish. As the tide rises the spider returns to a tubular silken retreat, weaving a watertight covering over the entrance, only to appear again at the next low tide.

D. marina is found on the three main islands as well as the Australian mainland, however in Tasmania, Desis kenyonae (Pocock) is the common marine spider.

Achaearanea veruculata (Urquhart, 1885) - Family Theridiiae.
This very common cobweb spider is distributed throughout New Zealand found on the exterior walls of most houses. The web gives the appearance of a tangled mass of single threads in which the spider rests, ventral side uppermost. The spider is not large, having an abdomen the size and shape of a pea, which is patterned in blacks, greys and white.

The spider was first described from New Zealand and only recently recorded from Australia, interestingly this spider is now established on the Scilly Isles off the South West tip of England.

Argyrodes antipodiana (Cambridge, 1880) - Family Theridiidae.
The silver-sheened, conical-shaped abdomen of this symbiotic

spider, gives rise to its common name of dew-drop spider. The spider does not construct a web snare, but resides in the web of other spiders; frequently the orb-web spider Araneus pustulosa. It preys either upon the tiny insects trapped in the host's web or the prey of the host spider.

Araneus pustulosa (Walckenaer, 1841) - Family Argiopidae. This large Australian orb-weaver is common throughout New Zealand, and is to be found at night resting in the hub of its orb-web. A. pustulosa is readily distinguished from other orb-web spiders by the five prominences in a 'tee' formation at the tip of the abdomen.

Arachnura feredayi (L. Koch, 1872) - Family Argiopidae. The tailed spider as it is commonly known, is widely distributed throughout New Zealand and Australia. It differs from other spiders of the same family as the abdomen is elongated, deeply cleft in front and running to a thin tail. The end of the tail is tipped with five small tubercles.

The web of the tailed spider is orb-shaped and the silk encased remains of prey are strung vertically above the web hub making it difficult to distinguish the spider from the prey it has consumed.

Leucage dromedaria (Thorell, 1881) - Family Argiopiralae. These are beautiful spiders with abdomens predominantly of silver, streaked with yellow, green and black. Besides the striking colouration this spider can be recognised by a frontal hump of the abdomen which extends over the carapace. They build a near horizontal orb-web in low foliage on which they rest ventral side upwards so that their dark underside tends to blend in with the substratum.

Distribution of the spider is restricted to the northern half of the North Island, where it is common.

Argiope protensa (L. Koch, 1871) - Family Argiopidae. This spider's yellow-edged, silver abdomen is rounded in the front, tapering to a thin tail, hence the common name of tear-drop spider. The female reaches a length of 15 mm and is found, ventral side upwards, in the hub of its large orb-web, which sometimes contains a ragged stabilimentum. The web is often built at an angle to the ground in tall grass and low scrub. The egg sac is cupshaped with a flat lid and is suspended in groups from a tangled mass of guy threads, close to the web.

The spider ranges over most of the North Island but is not common in the South Island.

Cyclosa trilobata (Urquhart, 1884) - Family Argiopidae. The adult female, who is considerably larger than the male, is shiny, black all over, with the dorsal face of the abdomen being streaked and spotted with silver. The posterior end of the abdomen is formed into three rounded lobes, of which the two lobes extending from the side of the abdomen are frequently rusty-brown in colour.

The male is half the size of the female and is usually less well marked. This spider weaves a typical orb-type web, usually placed close to the ground and frequently a group of webs will be found, each with a spider at rest in its centre.

Another recent arrival (1971) which has also become established around Auckland and in the Waikato is the Australian two-spined spider, Poecilopachys australasia (Keyserling). The mature female has two prominent dorsal abdomenal spines and is brightly coloured with bands of cream, yellow and red on a background colour of greyish green. The male is a minute brown spider easily overlooked unless found about the web of a female spider.

This spider weaves a delicate orb-web once dusk has fallen, usually in citrus trees, only to dismantle it before dawn. The tear-drop shaped brown egg sac is suspended from the underside of a leaf and appears in late December or early January.

The family Argiopidae has not been well studied in either Australia or New Zealand, so that the number of spider species common to both countries could well be greater than is at present realised.

During the summer of 1980 a single, mature, female spider of the species Araneus heroine (L. Koch, 1871) was collected in a Hamilton garden and referred to the author. This is probably the first record of this large orb-web spider as there is no previous mention of it in New Zealand literature. The identification provided by the author was confirmed by finding that the epigynum of this spider was identical with an illustration of the same, in an Australian publication - "Some Common Spiders of Tasmania". In the field A. heroine can be recognised by the distinctive, white upon brown patterned abdomen and the three prominent abdomenal tubercles.

The adult female A. heroine has a body length between 11 mm and 18 mm. The carapace is yellowish with brown on each side, while the anterior two-thirds is dotted with long, recumbent white silky hairs. The legs are yellowish-brown banded with dark brown. The abdomen is roughly triangular, rounded in the front and at the sides, running to a posterior tubercle above the spinnerets. There are two conical humeral tubercles at the anterior end of the abdomen. The abdomen is yellow, finely speckled with brown, which can be quite dark in colour and is marbled with white markings. The epigynum has a long tapering scapus, transversely wrinkled and dotted with short hairs.

A. heroine can be readily distinguished from the common orb-web spider A. pustulosa which is similar in size and colour, as the latter species has five prominences in a 'tee' formation at the posterior tip of the abdomen, while A. heroine has only one.

No adult males of A. heroine have been collected in New Zealand, but Tasmanian specimens measure approximately 8.5 mm in length and are the same colour as the female.

A. heroine is common in all eastern Australian States from Queensland to Tasmania. Its web is orb-shaped, has no stabilimentum and usually inhabits low grass or low shrubs.

It is not known whether or not an established population exists, but a further specimen (adult female) was observed in another Hamilton garden during the summer of 1981/82. This additional record could well indicate that A. heroine is established in the Waikato, even if it is very low in number. As the status of this spider will need to be confirmed the author would appreciate further specimens and observation records.

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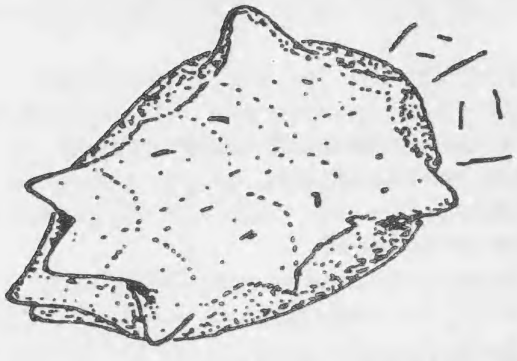
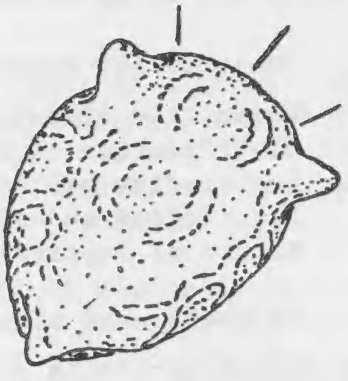
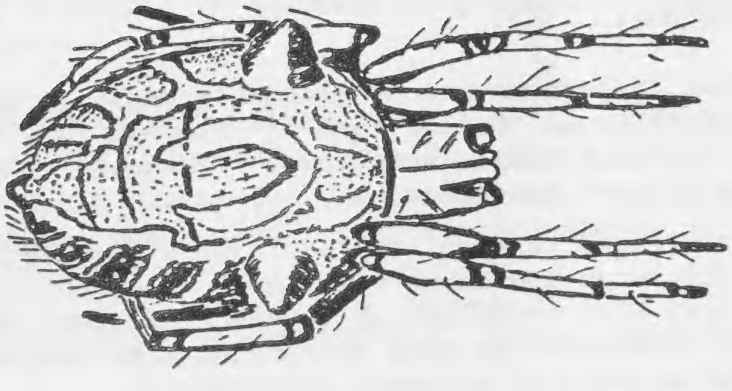


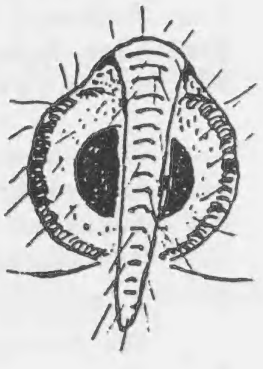
Araneus pustulosa



Araneus heroine



Araneus heroine ♀



Epigynum

ROYAL SOCIETY OF N.Z. REPORT ON NATIONAL COLLECTIONS

A copy of this was received from the Executive Officer of the Royal Society of N.Z., who stated that it is a preliminary document, and that the Committee would welcome comments on it from the Entomological Society of N.Z. and other societies.

The report gives a brief history of previous surveys and documents relating to national collections. It was set up by the Council of RSNZ as a result of a request from the Council of the National Museum. In 1978, the National Museum Council considered a request from Entomology Division, DSIR, for support for giving legislative protection to the Division's large Arthropod collection, perhaps under the National Museum Act. The Council considered that many matters raised concerned other groups of N.Z. plants and animals as well as Arthropods. Accordingly, it requested the Royal Society to investigate the whole matter. The RSNZ Council set up an ad hoc Committee to investigate and report.

Subjects for consideration were:

1. Definition of national collections.
2. Clarification of the position of non-governmental collections.
3. Legislative protection for systematic collections.
4. Restriction on export of collections?
5. Return of important collections from overseas?

To these were added:

(i) Electronic data processing (EDP) for national collections.
(ii) Data standards for national collections.
(iii) The place of living collections (botanic gardens, zoos, cultures).
(iv) Assistance by national collections to regional collections.

Membership of the committee is: Prof. G.A. Knox (Convener), Drs A.G. Beu, T.K. Crosby, R.R. Forster, D.R. Given, J.C. Yaldwyn.

The report reviews the principal scientific collections held in N.Z., i.e. National Museum, various DSIR collections, Forest Research Institute, Fisheries Research Division, metropolitan museums, university collections and living plant collections.

The Committee agreed that there was considerable merit in having certain collections designated as "Collections of National Importance", and discussed criteria and mechanisms whereby such a proposal could be implemented. There was general agreement on:

1. A collection is considered to be of national importance because of the irreplacable reference specimens or objects it contains.
2. It was suggested that RSNZ establish an independent panel of suitably qualified scientists to make recommendations concerning the designation of "Collections of National Importance".
3. The Committee considers that the possibility of having appropriate legislation to protect collections of national importance should be explored. The Wildlife Act (!) is suggested, albeit with reservations.

Designation of Collections of National Importance could be expected to reinforce the trend towards rationalisation of holdings of various institutions, with types and other important specimens and collections tending to be deposited where they will be best curated and studied.

On balance, the Committee considered that legislation to restrict export of biological material other than existing types would create more problems than it would solve. However, there would be merit in a specialist committee drafting a "Code of Conduct" concerning the export and exchange of specimens.

Although return of type specimens from overseas to New Zealand is desirable, it is recognised that this will be difficult, and in many cases, impossible to achieve. Some overseas institutions have indicated interest in returning types in exchange for representative recent collections. The Committee recommends that N.Z. institutions should pursue a policy of purchasing or exchanging historical collections and duplicate type material where they become available; and encouraging workers to lodge types of recently described N.Z. taxa in N.Z. collections.

Implementation of electronic data processing (EDP) is complex and initially time consuming, although its long-term advantages outweigh this. It is highly desirable that minimum standards of data recording and input be adopted, along the lines of Busby, J.R., 1979:: "Australian biotaxonomic information system: introduction and data exchange standards".

The Committee also recommends that the Biological Resources Centre should compile a register of living plant collections (botanic gardens and cultures of fungi and microorganisms). RSNZ and Nature Conservation Council should explore the proposal to set up a national botanic garden system with the establishment of regional collections of live plants, which collectively would constitute a national collection.

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The following is the text of a letter from the Society to the Royal Society of N.Z.

REPORT ON NATIONAL COLLECTIONS

Copies of the report were circulated to the Society's Executive. In general, we agree with the report, and would like to commend the Committee for their work. However, we wish to make the following comments and criticisms.

Page 1, line 10: "Biosystematics: the neglected science".

Page 8, par. 3: In our opinion, the Wildlife Act, dealing as it does mostly with the protection and/or management of living mammals and birds, is completely unsuitable for protecting collections of national importance. It appears that a new act, perhaps entitled: "National Museums and Collections Act" is required. In our opinion, the Wildlife Act has already been stretched far beyond reasonable limits, but regardless of this view, we believe strongly that bringing museums and collections under the administrative machinery of the Wildlife Act could only be detrimental to taxonomic research. If protection of collections of national importance is to be incorporated in an existing act, the Antiquities Act would surely be much more appropriate than the Wildlife Act. We note that the response to applications under the Antiquities Act for permits to loan primary type specimens to reputable overseas institutions is very slow from the Department of Internal Affairs.

Page 8, par. 5: Collections made by individual scientists which are the subject of current research are not in need of legislative protection. There is a need, however, to ensure as far as possible that such collections, once they cease to be the subject of current research, are deposited in an appropriate public collection. This is a matter for education, not legislation. We do not want taxonomic research bound up by any more red tape than at present.

Page 8, last line: Is the Royal Society of New Zealand pressing the N.Z. Government to ratify CITES? If not, why not?

Page 9, pars. 2-4: Recently, two North American entomologists sold insect specimens which they had collected in New Zealand (with considerable assistance of government departments) to the U.S. National Museum, and the Canadian National Collection of Insects. This contravened the conditions of permits to collect in certain national parks, which make overseas collectors responsible for the return of type specimens of new species to an appropriate collection in New Zealand. By selling material of groups on which they were not working themselves, they relinquished control over the specimens, and therefore contravened some of the collecting permits.

Firstly, there is a need for all collecting permits to require return of holotypes of new species.

Secondly, there is a need for a written agreement, undertaking return of holotypes and a representative collection of other identified material to New Zealand when it is worked up; and also undertaking not to sell any of the material. Such an agreement would be signed by visitors before any assistance was given to them by New Zealand institutions. It would not prevent unprinicipled people selling material on their return overseas, but it would greatly strengthen our hand in negotiating with overseas institutions for the return of types in such cases.

This still would not catch the "fly-by-nights", who do not bother to contact institutions while they are here. This breed is becoming increasingly rare, probably because of the difficulty of arranging permits to collect without local assistance.

One officer of the Society comments: "State ownership of the biota would remove these problems. All New Zealand material overseas would then always be there on a loan basis."

Page 13, par. 4: See previous comments about inappropriateness of the Wildlife Act.

Page 13, par. 5: The committee should also consider control of disposal of material by visiting collectors (see above).

J. Charles Watt
PRESIDENT

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COMMON NAME FOR ADORYPHORUS COULONI Burmeister

This cockchafer was recently introduced into N.Z. and since then some confusion as to what its common name should be has occurred. It has been suggested that the sexual connotations of "Redheaded cockchafer" threw some of the old ladies of both the Australian and New Zealand Societies into a tizz - hence the production of sanitized names in both countries.

The CSIRO checklist of 1973 refers to it as the "Adoryphorus scarab". The Entomological Society's list of "Standard names for common insects" (Bulletin 4) refers to it as the "Australian black beetle", and a recently published Ministry of Agriculture and Fisheries "Ag-Link" changed the name to Red Headed Cockchafer.

As Ag-Links have a wide circulation amongst people without specialist knowledge, any future editions of the Society's "Standard names" list will probably used "Redheaded Cockchafer" to reduce confusion.

Editor's note: what a load of ... I just hope nobody decides to change the name of the Confused flour beetle.

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BRANCH NOTES

Nothing much from the branches this time - Otago have been hogging the press and TV with successful trip to the Hector mountains after the scarab beetle *Prodontria pinguis*.

Wellington had a wine and cheese meeting with no cheese - it sounded better than "wine and peanuts" which was what it was. That branch is organising a trip into the hinterland of the Wairarapa soon, to do some collecting.

THE NEW MUSEUM AT WAITOMO CAVE FAUNA EXHIBITS

The new museum at Waitomo, opened late last year is proving a huge success - for 10 years or so, all the locals for miles around as well as cavers and the tourist guides, have been planning and fund raising to bring it into being.

The building is handsome, occupying a strategic position in the village between the Store-Tearooms and the Post Office. It boasts an audio-visual room and has access for wheelchairs. The exhibits, coordinated by Dave Williams, the chief tourist guide and his assistant Chris Templer, will cover all aspects of the King country limestone, its people, its fossils, the formation of caves, their exploration and the animals which live in them. There is even a mini cave to give children a spice of adventure!

The weta display has been undertaken by Ann Stubbs, wife of a local farmer with caves on their own property. Examples of *Gymnoplectron waitomoensis* and *Pallidoplectron turneri*, the large and small cave wetas of the area have been caught and prepared for viewing, along with the bush weta *Hemideina thoracica figurata* for comparison. A childhood spent tagging along with an entomologist brother banished any qualms Ann might have had about handling the long-legged animals. She decided a really BIG one would look horrific climbing up the wall, and so it does! It is about 2 metres long. Ingeniously made with a polystyrene sectioned body, it has antennae of slender bamboo and legs of slightly thicker bamboo, spined with rose thorns and bougainvillea thorns for claws. Getting it into position entailed a last minute operation. Held on its back by four strong men - Ann standing by like an anxious Mum - a hole had to be drilled into the base of its ovipositor for a wire attachment.

Chris Pugsley has provided information for the glow-worm (*Arachnocampa luminosa*) ecology and life history display, resulting from his studies at Waitomo under a grant from the Tourist Hotel Corporation. A model fly has been promised by Dr Ian Stringer of Massey University. It will be a bigger and better version of the one which won a prize for him in the school Science Exhibition of 1963.

My own contribution is a 32 cm glow-worm made from Fimo modelling clay, 3-tone, streaky, inside slimy-looking Gladwrap "Hammock" to retrieve a tipulid fly from one of the fishing lines. The latter are made of dress makers nylon thread studded with droplets of quick drying Araldite glue and slightly weighted at the ends of dew drop shaped embroidery beads. The droplet making was tedious until I discovered that if the Araldite was run down a taut thread in a continuous line, it separated into droplets of its own accord. Many small holes and two broken drill bits later, it was installed, tied back with nylon thread against a black background.

The very spectacular photographs were taken by Brian Hurst of the Geography Department, Auckland University. They are printed on a type of film which allows for back lighting.

There is also a display of the King Country cave beetle, *Duvaliamimus mayae* the first troglobite species to be discovered in New Zealand.

Brenda May, Huia

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Shades of Baltic Amber!

K.A.J. WISE
Auckland Institute and Museum
Private Bag, Auckland

The Entomology Department, Auckland Museum, now has a piece of polished kauri gum which quite clearly holds three entombed arthropods near the polished surface. Unfortunately there is no locality or other collection data.

One specimen is a Scolytid beetle with a tiny spider nearby and there is a small millipede a little further away, all within 25 mm.

These are the first definite 'semi-fossil' specimens I have obtained and there does not seem to be any collection or register of other specimens in New Zealand. Despite a label in our Botany Hall 'Insects entrapped in the sticky resin' nothing recognisable can be seen by the naked eye (or with a glass!), but there are a few specimens in an excellent kauri gum collection in a small North Auckland museum.

If any other entomologists know of, or have recognised, other specimens of arthropods in New Zealand kauri gum, I should appreciate any information (or specimens?). If it is thought worthwhile, I am prepared to start a register which will be available to everyone in future.

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V.-B. Sky Troth, Astrologer
(consultations by appointment)
12 November 1981

J.D.N. Thin Quotes
To Ride, That Ewe
Real mean, evil, welch lice near last car, FAM
Pig Bat Rave
Pet Thru Up

Read Sir

Your stars and research : auras or dry seer chants?

I wish to submit the following paper for your consideration. It is set out in the format of the New Zealand Entomologist because originally I sent it to that journal. However, Dr Crosby and his referees thought your publication was a more appropriate place in which to publish my revolutionary findings. Initially I was a little disappointed at this rejection, but since I was born in the year of the dog, I should have been expecting such a result!

With the hope that you will find my paper worthy of publication.

Crossly ye inure
V.B. Sky Troth
(Ms) V.-B. Sky Troth
Drape our leg
Toy messiness tactic

P.S. I don't know if you are familiar with Represent's (1981) paper; I enclose a copy for your interest and editorification.

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Your stars and research : auras or dry seer chants?

Vice-borer Sky Troth

Gloomy Vision I Noted, RIDS, Pig Bat Rave, Cladnauk*

Abstract

Horoscopes, based on developments of anagramatic decomposition principles, are presented to allow New Zealand entomologists predict their coming prospects and directions for research and publication. The horoscopes are designed to be interpreted according to both conventional Occidental and Oriental signs of the zodiac. Conversion factors are provided to allow entomologists not fortunate enough to have been born in New Zealand to use them also.

Keywords: horoscopes; science; predictions; projects; publication; anagramatic decomposition; New Zealand.

*Author's present address: Loony Tome (G. Division), SIRD, Cladnauk.

INTRODUCTION

For many years there has been controversy over whether the stars influence the directions of a person's life or not. Proponents for the affirmative view cite as proof the accuracy of various horoscope predictions for prominent personalities, whereas cynics counter by stating that so many predictions are made that by the law of probability some must come true. The research in this paper was undertaken in the hope of adding further fuel to the flames by constructing horoscopes for researchers with entomological interests who may be planning research or the publication of results in the coming year.

METHODS

Principal component analysis

A principal components analysis was made (for method see Cooley & Lohnes 1972) on the relationship between a person's birth and the accuracy of horoscope predictions for 196 subjects who lived in Cladnauk. Twenty-six variables were used, and the data were prepared for analysis by the Allusive Hindsight Alogrithm (AHA). Varimax rotation was performed on a selected set of orthogonal factors resulting from the analysis.

Anagramatic decomposition analysis

The letter images of the Whole Original Recorded Design Sequences (WORDS) were transferred to a thin-layer wood-fibre medium by means of Bright Image Recorder Orthography (BIRO), and then separated into individual letter modules by means of Small Cuts In Several Sides Of Recording Surface (SCISSORS). The individual modules could then be rearranged by Anagramatic Decomposition (AD) and analysed according to criteria expounded by Represent (1981).

RESULTS AND DISCUSSION

Principal component analysis

The results of this analysis were clearcut. For the 196 Cladnauk subjects, using horoscopes constructed for use in Cladnauk, 89.8% of the variance between the expected predictions and actual prediction accuracies could be explained in the first 3 varimaxed principal components (VPC). These were interpreted by a leading astrologer versed in multivariate statistical analysis (Anon. pers. comm.) as meaning:

VPC1 (about 54%) -- general influence of the stars at the time of birth.
VPC2 (about 22%) -- actual time of birth. Subjects not born in the Cladnauk time zone need to adjust their time of birth to Cladnauk time to improve prediction accuracy.
VPC3 (about 14%) -- the number of daylight hours at the time of birth. Subjects not born in the same hemisphere as Cladnauk should adjust their hemisphere to the equivalent Cladnauk hemisphere to improve prediction accuracy.

The remaining 10.2% of variance was explained by a suite of minor factors including socio-economic conditions and the varied ability of subjects to correctly interpret predictions.

VPC1 is a well documented fact, although VPC's 2 and 3 are less well known. However, VPC's 2 and 3 are quite logical. VPC2 is explained by the fact that New Zealand leads the world in time (as with many things), and people coming to Cladnauk's time zone from elsewhere have to catch up with us. Similarly VPC3 is explained by the fact that the seasons in New Zealand are 6 months ahead of the Northern Hemisphere, and people coming to Cladnauk from antipodean Northern Hemisphere countries have a lot of catching up to do!

Consequently, people not born in New Zealand but who wish to use the horoscopes need to consult the conversion table (Table 1) to ensure the accuracy of their horoscope predictions. Also, those born in the Northern Hemisphere must consult the horoscope with the Occidental zodiac sign enclosed in parentheses to obtain their predictions based on Occidental criteria.

Anagramatic decomposition analysis

Although AD of WORDS was of some use for the title and other parts of this paper the overall results were somewhat disappointing. However, with 2 improvements the AD principle proved to be very useful.

1. Within already published horoscopes (e.g., Swami 1981) it was possible to select Sequences of ENTirely ENCoded Emotive Statements (SENTENCES). By then rearranging SENTENCES rather than WORDS AD analysis gave new, meaningful insights suitable for horoscopes.
2. Rather than use all the letter images of WORDS and SENTENCES it was possible to select only a subset of them for AD analysis. Furthermore, a completely unrelated subset from elsewhere could be incorporated into this subset and this further improved AD analysis. This AD improvement proved to be the most useful method for constructing the horoscopes presented here. With practice, it became no longer necessary to construct individual letter modules before starting AD.

Conversion table for time zone adjustments

If you are not fortunate enough to have been born in New Zealand, yet wish to use these horoscopes, you may need to alter your date of birth to the Equivalent New Zealand Standard Time Day (ENZSTD) to ensure that your Calender Date of Birth (CDB) for the purposes of the horoscopes is the same as it would have been if you really had been born in New Zealand. This adjustment is necessary if you were born on the boundaries (cusps) at certain hours. The greater the time difference between New Zealand and the place you were born, in terms of local standard time, the more likely it is that you will need to work out your ENZSTD. Table 1 lists some cities arranged in order of increasing time zone difference from New Zealand. For each city there is a Time-Of-Birth Period (TOBP); if you were born in the TOBP shown you will have to add 1 day to your CDB to obtain your ENZSTDCDB; if you were born outside the TOPB you do not have to adjust your CDB. It is vital that you make this adjustment otherwise the accuracy of your horoscope prediction will be adversely affected.

Similarly, if you were not born in New Zealand you should add a number of hours to your time of birth to obtain your equivalent New Zealand time of birth to use with the time of birth part of the horoscopes. The number of hours to be added is included with the cities listed in Table 1.

Calculating your Oriental birth sign

Oriental birth signs are based on the year of birth. People from all parts of the world born in the same year have the same birth sign, and no conversions are needed to use the horoscopes presented here. Table 2 gives a table of years and the corresponding Oriental birth signs.

Table 1. Time zone adjustments required for subjects not born in the Cladnauk time zone

City	TOBP (local standard time)	No. hours to add to your time of birth
Sydney	2200-2400	2
Adelaide	2130-2400	2.5
Tokyo	2100-2400	3
Perth W.A., Peking, Hong Kong	2000-2400	4
Bombay	1730-2400	6.5
Johannsburg, Jerusalem, Athens, Helsinki	1400-2400	10
Berlin, Copenhagen, Madrid, Paris, Vienna, Oslo	1300-2400	11
London, Perth, Dublin	1200-2400	12
Rio de Janeiro	0900-2400	15
Santiago, Bermuda	0800-2400	16
Detroit, New York, Montreal Washington D.C.	0700-2400	17
Chicago, New Orleans	0600-2400	18
Los Angeles, San Francisco	0400-2400	20
Honolulu	0200-2400	22
Samoa, Rarotonga	0100-2400	23

Table 2. Oriental birth signs may be found by matching your year of birth to the sign. Note, however, that the date of a New Year on the Oriental Calender varies from year to year in terms of the Occidental Standard Calender. As an approximation, the average date of the Oriental New Year is 26 January plus or minus 12 days.

Oriental birth sign	Year of birth						
Rat	1900	1912	1924	1936	1948	1960	1972
Ox	1901	1913	1925	1937	1949	1961	1973
Tiger	1902	1914	1926	1938	1950	1962	1974
Rabbit	1903	1915	1927	1939	1951	1963	1975
Dragon	1904	1916	1928	1940	1952	1964	1976
Snake	1905	1917	1929	1941	1953	1965	1977
Horse	1906	1918	1930	1942	1954	1966	1978
Sheep	1907	1919	1931	1943	1955	1967	1979
Monkey	1908	1920	1932	1944	1956	1968	1980
Rooster	1909	1921	1933	1945	1957	1969	1981
Dog	1910	1922	1934	1946	1958	1970	1982
Boar	1911	1923	1935	1947	1959	1971	1983

HOW TO FIND YOUR HOROSCOPE

Each of the 12 horoscopes has information preceding it. For example, the information for the first horoscope is:

Aquarius (Leo)	21 Jan-18 Feb	0300-0500	Tiger

"Aquarius" is the Occidental zodiac sign for a person born in the Southern Hemisphere between 21 January and 18 February. The zodiac sign in parentheses underneath, "(Leo)", indicates that this horoscope is also for people born in the Northern Hemisphere between 21 July and 22 August. If you were born on the equator, take your pick. If you were born on a cusp outside the Cladnauk time zone, you may need to make an adjustment according to the criteria in Table 1.

"Tiger" is the Oriental birth sign for people born in the years indicated in Table 2.

"0300-0500" is a time period of the day based on the Oriental division of a day. People born during this time in the Cladnauk time zone can use this horoscope for further predictions, but people born outside the Cladnauk time zone need to adjust their time of birth according to criteria in Table 1 to find out which horoscope they need to consult.

Examples:

1. You were born in the back of a car at Eketahuna at 2250 hours on 22 September 1948. As you were born in the Cladnauk time zone, no conversions are required. 22 Sep = Virgo; 1948 = Rat; 2250 h = Boar.

2. The same time and date as 1, but born on a Sydney ferry. Table 1 indicates that you need to add 2 hours to your TOBP, bringing your ENZSTDCDB to 23 September 1948, 0050 h. 23 Sep = Libra; 1948 = Rat; 0050 h = Rat.

3. The same time and date as 1, but born on a London double-decker bus. Table 1 indicates you need to add 12 hours to your TOBP, bringing your ENZSTDCDP to 23 September 1948, 1050 h. Also, being born in an antipodean Northern Hemisphere country means you need to adjust your hemisphere. 23 Sep = (Libra) found beneath Aries; 1948 = Rat; 1050 h = Snake.

If the date of birth had been 26 January in these examples, then the Oriental sign could have been either Boar or Rat. It would have been up to the individual to choose the one with the predictions they preferred.

Aquarius 21 Jan-18 Feb 0300-0500 Tiger
(Leo)

You may be putting something to one side because you are scared of the consequences. Go on -- finish it, it won't be as bad as you think! A bout of hard work will get you a lot of credit. If starting a project, don't let an early mistake depress you too much. Adverse comments about your write-up may be the result of you launching into explaining points 3 and 4 without previously explaining 1 and 2. Remember, if you want top quality reproduction of figures, then the originals must also be of top quality.

Pisces 19 Feb-20 Mar 0500-0700 Rabbit
(Virgo)

In your career you can pick up an interesting contact this year, which could lead to changes in the succeeding months. You will find an interesting new way of filling spare time. You can save time by rearranging your paper to the journal format before submitting it. You may have difficulties in tracking down the authorities for some N.Z. taxa belonging to minor Orders; check Wises' (1977) checklist. Make your presence felt at any meeting; you'll get nowhere at the back of a crowd.

Aries 21 Mar-19 Apr 0700-0900 Dragon
(Libra)

There could be a warm glow of satisfaction at something you achieved in the past. Don't keep trying to persuade someone -- go ahead without them and they'll soon follow. Plan an experiment carefully so that you don't repeat the mistakes of yesteryear. There may be unforeseen delays in having a paper accepted for publication. A friendly enquiry to the editor may be worthwhile. Your social life may be temporarily curtailed as the deadline for a major work rapidly approaches.

Taurus 20 Apr-20 May 0900-1100 Snake
(Scorpio)

A friend has a lot to report over coffee breaks, not all of it true. If a machine goes wrong, expect a long wait for the replacement. Be ready for a surprise reaction if you spring a new idea on anyone. You may have some troubles comparing the information given as Imperial units in earlier papers with that you have measured as SI units -- don't despair! You are tempted to rewrite a piece of research you have been asked to referee to suit your own style of writing -- don't, unless the scientific facts are presented ambiguously (and then, preferably, put your version on a separate piece of paper).

Gemini 21 May-20 Jun 1100-1300 Horse
(Sagittarius)

You could make an important new discovery. You can have confidence in pursuing your own desires without complications from other people. An advance in technology will shortly help you. Don't reject the harebrained idea of a colleague outright, as it may provide the key to a stubborn problem. Writing-up the outline of your project may reveal that more information is needed before any more progress can be made. You generosity with praise over a colleague's publication will be greatly appreciated.

Cancer 21 Jun-20 Jul 1300-1500 Sheep
(Capricorn)

This is an auspicious time to plan carefully for the future and you should pay attention to other people's advice. Your new attitude will change your outlook, but may puzzle your friends. You'll find that someone's cooperation will be finally forthcoming. A meeting in May or August could prove to be most profitable, and result in an exciting new field of research for you. In writing-up, follow the advice of someone who knows -- or better still, follow their personal example.

Leo 21 Jul-22 Aug 1500-1700 Monkey
(Aquarius)

You need more information about a matter you only half understand. A friend will prove helpful as long as you make your needs known. The "ill-informed" remarks of a referee shouldn't be ignored -- your wording of a paragraph could be open to misinterpretation. Check that you have correctly converted all units into metric equivalents. Your beliefs may be tested.

Virgo 23 Aug-22 Sep 1700-1900 Rooster
(Pisces)

You should be finishing a lot of half-done projects. Something you've neglected will now need a great deal of attention. A prediction may come true. A setback in your research makes you angry for a while, but you will see the sense of it later. If statistics isn't your forte, get an expert to work things out -- or a mistake may be made. If in doubt about writing-up, check the Instructions to Authors. Be calmly honest about your own feelings. You may get caught up in bureaucratic delays.

Libra 23 Sep-22 Oct 1900-2100 Dog
(Aries)

You can bring people from different backgrounds together. Don't be intimidated by a strong-minded person. Keep quietly to your own views, and you'll triumph in the end. Avoid the temptation of giving up on a difficult-to-write section; if you do, it will rebound onto you later. Instead, share your problem with a friend over a tea break. A paper you submit to a journal may be rejected, but the editor suggests a more suitable journal for your type of paper. A potentially major error will

escape your attention, but luckily a colleague who is assisting you with proofreading will notice it on the second reading. You can make a fool of yourself by not following rules.

Scorpio 23 Oct-21 Nov 2100-2300 Boar
(Taurus)

You will be appreciated for qualities you didn't know you had. You may have to relearn something that you have forgotten. Don't trust someone's instant reaction. An angry protest will get you nowhere; a kindly word works wonders. Don't upset someone's feelings about their publication unless you are sure you are doing the right thing. A news media report may misinterpret your findings and cause you some problems.

Sagittarius 22 Nov-22 Dec 2300-0100 Rat
(Gemini)

In your career you will find an opportunity to use your initiative. Something you thought was over will soon be alive and kicking again. There could be a big argument with little agreement in the end. A moment of forgetfulness could cost you that great idea. Let people know where you are with your research, as they may have a timesaving idea. A deadline in November may prove difficult to keep because of conflicts with pressing social engagements.

Capricorn 23 Dec-20 Jan 0100-0300 Ox
(Cancer)

Strive for success at work, your efforts will be noticed. A great time for sharing with others, making joint plans, etc. When you receive your manuscripts back from the typist or keyboarder, check them out thoroughly before sending them off to a journal for consideration for publication. Some references you need for checking when writing a paper may be difficult to find because they have been incorrectly cited -- don't perpetuate the errors. Praise for a publication may come from an unexpected quarter.

People interested in constructing their own personal horoscopes in order to obtain even more accurate predictions are advised to purchase almagests published by the American Federation of Astrology which are available at most leading bookstores.

Voucher horoscopes of this study have been deposited at the New Zealand Astrology College (NZAC), Cladnauk.

ACKNOWLEDGMENTS

My thanks to Join H. Nomadland, Madhits Apple Division, SRID, for bringing Represent's (1981) paper to my attention, and my colleague Mrs Mary Ageawe for comments on the manuscript. Financial assistance for this study may be forthcoming from the American and New Zealand Association for Astrological Sciences (ANZAAS).

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Represent, P.T. 1981. Anagramatic decomposition or I go to mop Canadian matrices. Bulletin in applied statistics (BIAS) 8(1):57-61.

Swami 1981. Watching your stars. New Zealand herald: Saturday mornings.

APPENDIX 1 -- On the name Cladnauk

Until recently Cladnauk was thought to be a curious combination of English and Russian words: some experts considered that the English 'clad' (past participle of 'clothe') and the Russian 'nauk' (science) referred to the fact that science could be covered up by the Official Secrets Act, whereas others suggested it really signified the unwillingness of science to emerge from under its covering to investigate inexplicable phenomena. Both these schools of thought, however, have had to reassess their thinking with my recent discovery of an early publication found using the computerised database on New Zealand entomology which indicated a simpler and more accurate derivation of the name: that in fact it derives from the corruption of the two German words 'Kladde' (rough draft) and 'Nautik' (art of navigation). These words were recorded in frustration by an early scientist in New Zealand whilst searching for reputed sites of fossil insects in the area ["The sketch map that I obtained . . . for my guidance was not much better than a piece of white paper." (Fleming 1959:6)]. Many people have since recognised the logic of his interpretation based on their own experience of desperately trying to muster all their navigational skills to find their way round this sprawling city. The issue is not yet resolved: language experts are petitioning the City Council to correct the corrupted German to 'Nautikkladde', whereas a counterpetition is suggesting a name without meaning should be formed by making an arbitrary rearrangement of the letters of the existing name. The City Council has deferred a decision until a 'Make-a-Name' competition has been held.

Fleming, C.A. (translator and editor) 1959. Ferdinand von Hochstetter. Geology of New Zealand. Wellington, Government Printer. 290 p.

SOUTHERN RECORDS OF *LISSOTES RETICULATUS* (LUCANIDAE)

R.M. Emberson, Lincoln College
Entomology Department

Holloway (1961, 1963) showed the distribution of *Lissotes reticulatus* Westwood only extending as far south as Banks Peninsula in the South Island. However, isolated populations of the species extending at least as far south as Waimate have since been discovered in the remnants of mixed podocarp-broad-leaved forest along the eastern side of the Hunters Hills.

Peter Johns, in describing several new species of Sphaerotrichopid millipeds, mentioned that *L. reticulatus* had been found in this general area, but without giving any details (Johns, 1964 p.31). Since a further record has come to light and the others are not generally known, these are given here:

LCNZ	2 specimens	Upper Pareora Gorge
UCNZ	4 specimens	Kelsey's Bush, Waimate
UCNZ	3 specimens	Hook's Bush, Waimate

References

Holloway, B.A. 1961. A systematic revision of the New Zealand Lucanidae (Insecta : Coleoptera). *Dominion Museum Bulletin, 20:* 1-139.

Holloway, B.A. 1963. Wing development and evolution of New Zealand Lucanidae (Insecta : Coleoptera). *Transactions of the Royal Society of New Zealand, 3(11):* 99-116.

Johns, P.M. 1964. The Sphaerotrichopidae (Diplopoda) of New Zealand. 1. Introduction, revision of some known species and description of new species. *Records of the Canterbury Museum, 8(1):* 1-49.

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AMAROTYPUS (CARABIDAE) AND THE AUSTRAL MIGADOPINAE

R.M. Emberson, Lincoln College
Entomology Department

In view of the biogeographic interest of the unusual ground beetle subfamily Migadopinae and particularly their often quoted extreme southern distribution, in southern South America, south eastern Australia and New Zealand including the Auckland Islands, it may be interesting to look at the New Zealand genus *Amarotypus* Bates.

The last comprehensive taxonomic treatment of the subfamily was by Jeannel (1938), an ardent supporter of southern dispersal routes, who was impressed by their widespread southern distribution, using this as evidence for previous connections between the southern continents. He believes all the species to be flightless and ground-dwelling and so poor candidates for long distance

over-ocean dispersal. Darlington (1965), who at that time was unconvinced of the biological arguments for continental drift and southern dispersal routes, pointed out that *Antarctonomus complanatus* (Blanchard) in Chile and Tierra del Feugo and *Decogmus chalybeus* Sloane in New South Wales were not flightless, but had well developed hindwings. Further, *Decogmus* and the Uruguayan *Rhytidognathus ovalis* Dejean do not have a cold temperate distribution, because they occur at 31° 38'S and 35°S respectively, both at less than 300 m altitude and so the group could have assumed this present fragmented distribution via a northern route. Darlington also noted that *Decogmus* may live on trees.

Amarotypus (sole described species, *A. edwardsi* Bates), although brachypterous, has fairly well developed hind wings, 65-75% of the length of the elytra, and so may have become flightless only relatively recently. *Amarotypus edwardsi* apparently occurs throughout New Zealand at mid to low altitudes. A specimen before me (LCNZ) bears the data 'On shrubs at night, Waipoua State Forest, 4.ii.1975' and is the northernmost record of a migadopine in the New Zealand region, of which I am aware. At latitude 35° 39'S and less than 150 m in altitude this is certainly outside the cold temperate distribution of most of the other species. *A. edwardsi* is arboreal, frequently being beaten from *Nothofagus* and other trees and shrubs. There are, however, several poorly known undescribed alpine species of *Amarotypus* in the south western mountains of New Zealand that are presumably ground dwelling.

According to the revision of Jeannel (1938) *Amarotypus* occupies an isolated position in the subfamily, so the similarities to *Decogmus* and the other species mentioned above are not thought to indicate a close genetic relationship. Thus in each of the three areas in which the Migadopinae occur there are species that are not limited to the cold temperate zone, that are winged or probably have relatively recent winged ancestors and, in at least two of the regions, are arboreal rather than ground-dwelling. However, in light of present knowledge of plate tectonics it seems likely that the Migadopinae in each area are descendants of a Gondwanaland fauna, especially as the subfamily seems quite isolated from other carabid subfamilies.

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Jeannel, R. 1938. Les Migadopides (Coleoptera : Adephaga) une lignée subantarctique. Revue fr. Ent. 5: 1-55.

FOR SALE:

One MBS-1 (East German Zeiss) Stereoscopic Microscope including stand, optical head, ocular eyepiece, stage, eyepieces x6, x8, x8 with dioptrical adjustment and reticule and scale, x 12.5 and x 15; elbow rests, eye shades, ground glass plate and black plate, transormer and variable rheostat, adjustable light (9 positions) bulbs and clamps. Magnifications x 3.5 to x 150, parafocal, field of view 42 mm to 2.6 mm; a special Galilean rotating optical system gives a good fixed working distance of 64 mm at all magnifications. Operates on transmitted or reflected light; case. What offers? Offers to G. Helson, 15A Noumea Place, Mairangi Bay, Auckland 10. Tel: 478 4157.

AN 'EXPLOSION' IN THE LADY BIRD POPULATION

Mrs Pauline Wilson reports -

Returning home to 'Lands End', Wakanui Bush, Ashburton towards the end of December, 1981 I was met by what seemed like millions of lady birds (*Coccinella undecimpunctata*).

It was a hot day (31 ^{o}C) - sunny and no wind, but the air was moving with them and anyone who ventured outside was covered with them.

This swarm persisted all day and was still evident the following day, but to a lesser degree. Friends at Ashburton, 16 km away reported large numbers there too.

Interestingly enough, this explosion occurred at a time when there was a serious aphid problem in the surrounding area.

ENTOMOLOGICAL SOCIETY OF NEW ZEALAND

The idea of a scientific newsletter was first mooted at the annual conference of the Entomological Society held at Waikato University during May 1974.

It was thought that, because of the formal nature of the "New Zealand Entomologist", many amateurs perhaps felt their efforts did not warrant publication; if there was some sort of vehicle to cater for their needs, interesting and perhaps important observations that would otherwise be lost to science could be recorded.

In October 1974, a four page cyclostyled newsletter containing notes of entomological interest was posted to members. It was not a great success and after 4 issues, publication ceased. During the suceeding two years, it again became evident that there was a need for a journal of some sort and it was during discussion with Graeme Ramsay at the Auckland conference that the idea of a more permanent publication was considered and eventually, the "Weta" was instituted.

During its few years of publicaton, "The Weta" has gradually increased in size and, starting with Volume 5 No. 1, will have a changed format and stiff cover.

The objectives remain the same: it is still a vehicle for views, branch notes, original articles, particularly from amateurs, and entomological observations generally.

J. D. Tenquist

Wallaceville Animal Research Centre
Private Bag
UPPER HUTT

The infinite host of non-descript insects occurring in the entomological cabinets of this country, is rather disgraceful to us: and what is more so, we permit foreigners to that for us which we are fully competent to do ourselves. Witness the numbers described by Fabricius, Olivier, and others from British collections.

Pudet haec opprobria nobis
Et dici potuisse et non potuisse refelli.

I am not, however, so illiberal as to wish that the entomologists of the continent should be excluded from our cabinets: if we ourselves are too idle, or too busy, to give the public some account of our entomological treasures, it is for the interest of science that they should do it for us.

Kirby, W. 1818. A century of insects, including several new genera described from his cabinet. Transactions of the Linnean Society of London 12: 375-482.

J.D. Tenquist, Editor
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NOTICE TO CONTRIBUTORS

The 'Weta' is a scientific supplement. Editing is kept to a minimum and authors are responsible for the accuracy of their statements. Manuscripts, where possible should be typed double-spaced, on Standard A4 paper, and on one side of the page only.

Authors with access to typing services are requested to supply manuscripts single spaced on A4 paper, using a typeface with ten characters to the inch.

High contrast black and white photos or penned line drawings are acceptable. Closing date for copy is 20th February and 20th August each year. Manuscripts received after those dates may be held over until the following issue.

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